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EXAMINER

SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/603,606	Applicant(s) PARK, KI BOK	
	Examiner Andrew Schechter	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-11 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Liquid crystal display device with venting portions in seal and method of manufacturing same".

Claim Objections

2. Claim 11 is objected to because of the following informalities: "the liquid crystal injection hole" has no appropriate antecedent. It is assumed that claim 11 was meant to depend on claim 10, rather than on claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites "a volume of both ends of the seal line at each corner of the seal pattern increases to be connected together". This is unclear. It is not the volume of the seal pattern which changes as the substrates are adhered, but the area of the seal

pattern and where it is located. Also, "both ends" is confusing in that it appears to refer only to the embodiment of Fig. 4. For examining purposes, it is assumed that the scope of the claim is "an area of adjacent parts of the seal line at each corner of the seal pattern increases so as to connect them together during the adhering of the first and second substrates".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 4-9 are rejected under 35 U.S.C. 102(e) as being anticipated by *Asakura et al.*, U.S. Patent No. 6,531,329.

Asakura discloses [see Figs. 1-3, for instance] a liquid crystal display device comprising first and second substrates [2, 3], a seal pattern [8] disposed between outer peripheral portions of the first and second substrates, and a plurality of venting portions [H₅-H₈] formed in the seal pattern at corner portions of the first and second substrates for venting air confined between the first and second substrates. Claim 1 is therefore anticipated.

The venting portions are aligned in a direction of a corner of the first and second substrates [see Fig. 1], so claim 4 is also anticipated. The air [11] surrounded by the seal pattern is discharged through each of the plurality of venting portions during bonding of the first and second substrates, so claim 5 is also anticipated. (It is noted that claim 5 recites a product-by-process limitation, which is only limited to the structure implied by the steps, not the steps themselves, and the steps do not limit the structure so the claim would be anticipated in any event.) A width of the seal pattern is given as 0.3 mm [col. 11, line 58-59], so claim 6 is also anticipated.

Asakura discloses a method of manufacturing a liquid crystal display device comprising providing first and second substrates [2, 3], forming a seal pattern [8] along an outer peripheral surface of the first substrate, the seal pattern configured such that a seal line is discontinuous at each corner of the first and second substrates [see Fig. 1], and adhering the first substrate having the seal pattern formed thereon with the second substrate. Claim 7 is therefore anticipated as well.

An area of adjacent parts of the seal line at each corner of the seal pattern increases so as to connect them together during the adhering of the first and second substrates [see Figs. 2D, 2E], so claim 8 is also anticipated. The method further comprises dropping liquid crystal [4a] into an inner region of the seal pattern formed in the first substrate [col. 9, lines 62ff.], so claim 9 is also anticipated.

7. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by *Suzuki*, U.S. Patent No. 6,678,029.

Suzuki discloses [see Figs. 2 and 3, for instance] a liquid crystal display device comprising first and second substrates [11T, 11F] a seal pattern [12] disposed between outer peripheral portions of the first and second substrates, and a plurality of venting portions [15] formed in the seal pattern at corner portions of the first and second substrates for venting air confined between the first and second substrates. Claim 1 is therefore anticipated.

The air [in the form of bubbles] surrounded by the seal pattern is discharged through each of the plurality of venting portions during bonding of the first and second substrates, so claim 5 is also anticipated. (It is noted that claim 5 recites a product-by-process limitation, which is only limited to the structure implied by the steps, not the steps themselves, and the steps do not limit the structure so in any event the claim would be anticipated.)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Suzuki*, U.S. Patent No. 6,678,029 as applied to claims 1 and 5 above, in view of *Asakura et al.*, U.S. Patent No. 6,531,329.

Suzuki discloses a method of manufacturing a liquid crystal display device comprising providing first and second substrates [11T, 11F], forming a seal pattern [12] along an outer peripheral surface of the first substrate, the seal pattern configured [see Fig. 3] such that a seal line is discontinuous at corners of the first and second substrates, and adhering the first and second substrates.

Suzuki does not disclose that the seal line is discontinuous at each corner; instead, Fig. 3 shows it discontinuous at only 2 corners. However, *Suzuki* states that “[t]here are no limitations on the installing places or the numbers of these outlets [15]” [col. 12, lines 30-34], and *Asakura* discloses [see Fig. 9] an analogous LCD with air bubble accommodation portions at all four corners. It would have been obvious to one of ordinary skill in the art at the time of the invention to have 4 such outlets, one at each corner of the LCD, motivated by the more rapid flow of air (bubbles) through 4 such holes than through 2 such holes, and the bubbles in the lower half of the display having closer holes to reach, hence increasing the speed of production. Claim 7 is therefore unpatentable.

Suzuki discloses dropping liquid crystal material into an inner region of the seal pattern formed in the first substrate [col. 7, line 45ff.], so claim 9 is unpatentable.

Suzuki also discloses using the vacuum injection method, with the seal pattern having at least one liquid crystal injection hole [16, for instance, see col. 13, lines 1-4], so claim 10 is unpatentable. This method comprises injecting liquid crystal material into a cell gap formed by attachment of the first and second substrates, and sealing the liquid

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crystal injection hole [see col. 8, lines 60-65, for instance], so claim 11 is also unpatentable.

Allowable Subject Matter

10. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 2, in particular the limitation that each of the plurality of venting portions formed at the corner portions of the first and second substrates include a plurality of opposing vent openings. (*Suzuki* discloses [see Fig. 7, for instance] a plurality of venting portions formed in the seal pattern at corner portions, each including a plurality of vent openings, but they are oriented perpendicularly to each other, not opposed as recited in claim 2.) Claim 2 would therefore be allowable if rewritten appropriately, as would claim 3 which depends on claim 2.

Conclusion


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,184,239 to *Sano et al.* [see Fig. 11] opposing openings [60a], but not a plurality of venting portions at corner portions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrew Schechter
Patent Examiner
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20 September 2004